June 5, 1951 F. B. CLARK 2,556,028

LABELING MACHINE

Filed Dec. 15, 1948 2 Sheets-Sheet 1

Fig. 1

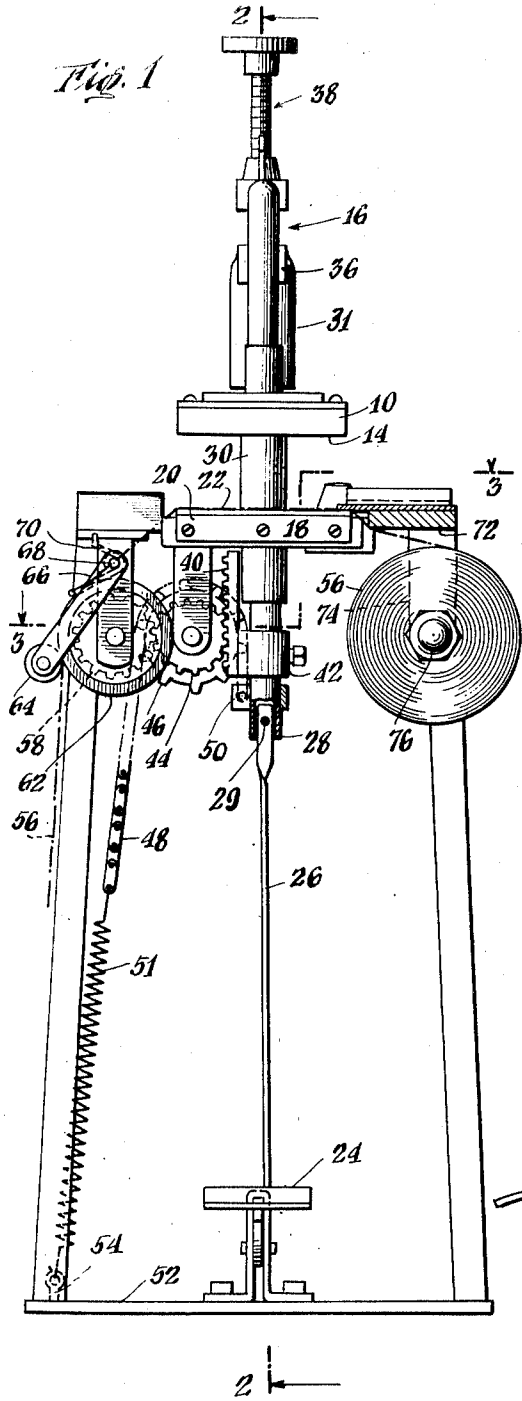
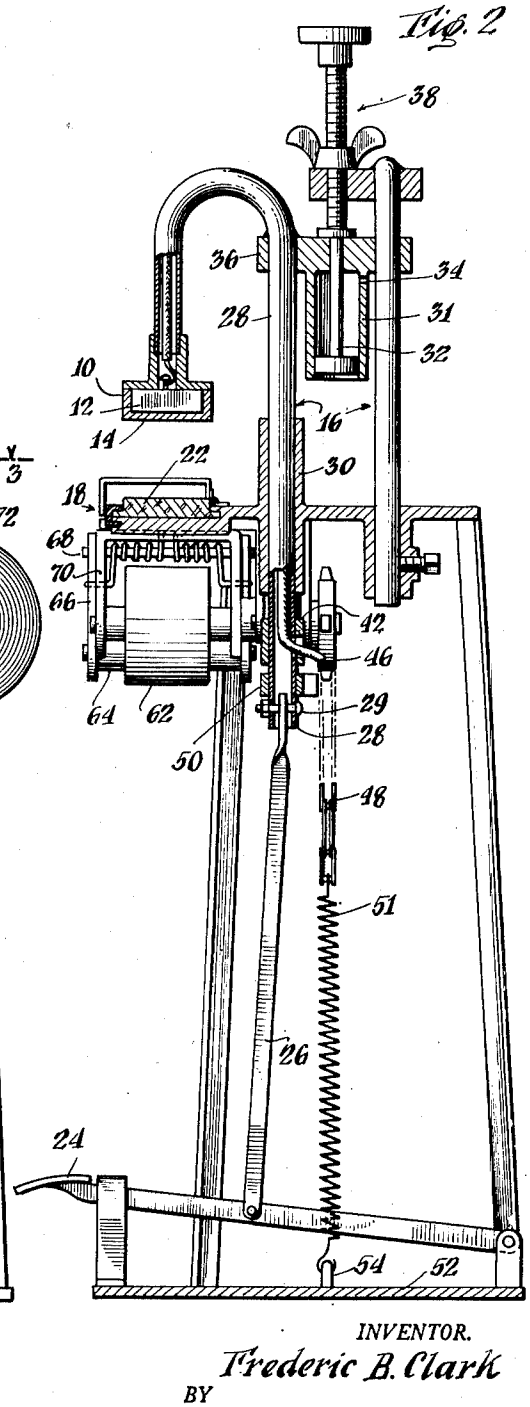


Fig. 2



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Fig. 3

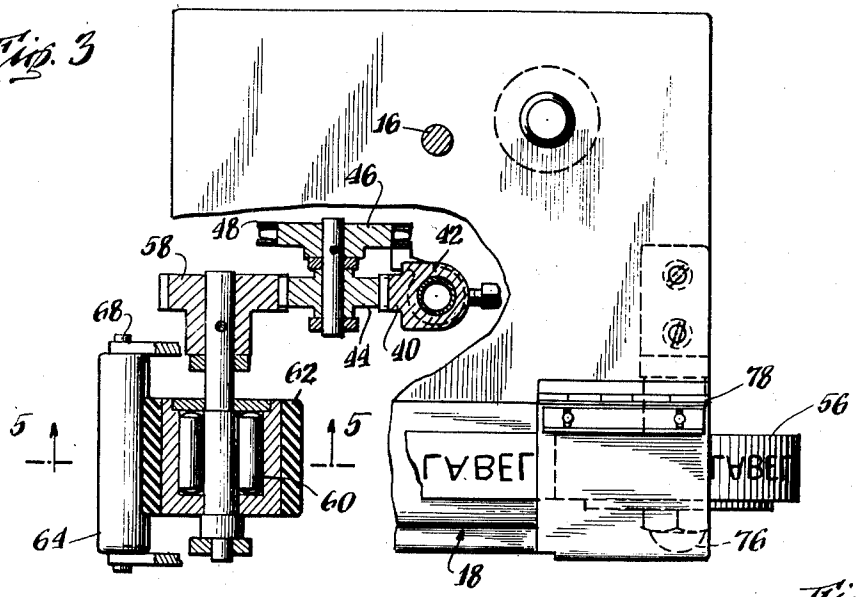


Fig. 4

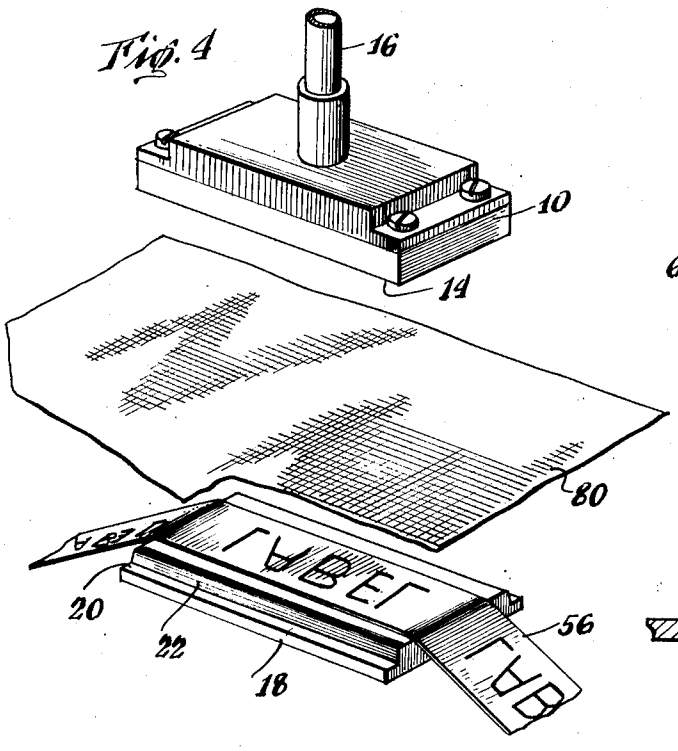


Fig. 5

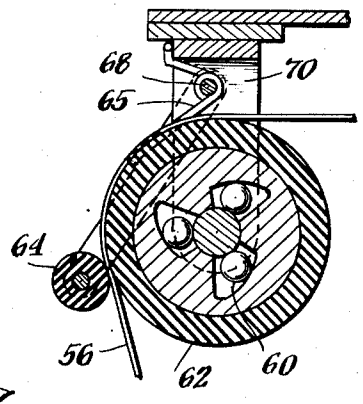
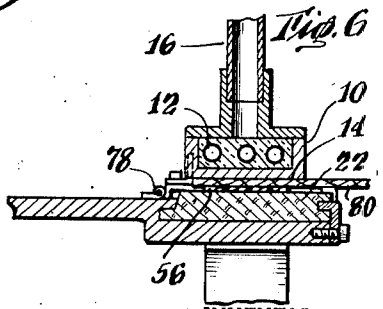


Fig. 6



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UNITED STATES PATENT OFFICE

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LABELING MACHINE

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2 Claims. (Cl. 41—1)

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This invention relates to a method and machine for marking absorbent goods.

The invention is particularly useful in connection with the marking of napkins, handkerchiefs, sheets and other laundry articles. It will therefore be described in detail in connection with such use.

In marking goods of this type it is customary to use a marking material or ink that is solid (non-flowable) at normal temperatures but becomes flowable when warmed. This marking material is commonly stamped onto strip mounting such as paper tape which comes in roll form. The tape is unwound as used and drawn through the marking machine where it is brought face to face with the part of the goods to be marked. Then heat and pressure are applied to the assembly of the goods and the mark, the heat being applied to the marking material or the strip on which it is mounted and the material thus softened being transferred to the surface of the goods.

A difficulty arises in that the marking material or ink so transferred concentrates largely on the surface of the fabric or like article being marked.

The present invention provides a method and machine for causing penetration of the heat softenable marking material within an absorbent article being marked and also insures good clean unblurred marking.

Briefly stated, the invention comprises a method of marking which includes maintaining the fabric or like absorbent goods to be marked at a temperature above that of the warmed transferrable marking material at the time when the fabric or the like is being pressed against the said material. More specifically the invention comprises applying the heat to the marking material through the absorbent goods to be marked, so that the goods are at a temperature above that of the marking material, even when the latter is warmed to flowable condition, and that the normal tendency of the said material to solidify or concentrate largely on the surface of the material being marked is avoided and satisfactory penetration of the goods is obtained. The invention comprises also the herein described machine for effecting the marking.

The invention will be described in connection with the attached drawings in which

Fig. 1 is a front elevation of the machine partly in section.

Fig. 2 is a side elevation of the machine partly in section.

Fig. 3 is an enlarged view on broken line 3—3 of Fig. 1.

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Fig. 4 is an enlarged view of a part of the machine illustrating particularly the means for applying the pressure and heat to the goods and marking material.

Fig. 5 is a sectional view on line 5—5 of Fig. 3.

Fig. 6 is a sectional view showing the platen in the lowered or pressing position.

The machine includes platen 10 with inner electrical resistance heating elements 12 and with a generally plane surface 14 that is the lower surface in the assembly shown in Fig. 6 and other views of the machine. Means indicated generally at 16 mount the platen in movable manner adjacent to but spaced from support 18 provided with a generally plane surface 20, with the side 14 of the platen turned towards the surface 20 of the support. Mounted upon the surface 20 is a layer of thermal insulating material 22.

The platen is movable in the direction of the layer 22 and surface 20 of the support by means of the foot pedal 24, rod 26, extension 28 of the mounting of the platen, pin 29 attaching part 26 to part 28 and guide sleeve 30 through which extension 28 moves. A check 31 of the kind ordinarily used to avoid slamming of doors is connected as shown particularly in Fig. 2 so as to prevent excessively rapid movement of the extension 28 with attached platen 10 either upward or downward. This check includes the outer cylinder, the plunger 32, air outlet 34, part 36 secured to the said extension 28, and adjusting means indicated generally at 38.

To return the platen to the raised position of Fig. 1 or 2 after it has been drawn down by the foot pedal to the closed position shown in Fig. 6, there are provided rack 40, means 42 securing the rack in fixed relationship to the lower part of extension 28, gear wheel 44 meshing with the rack, a larger gear 46 mounted non-rotatably on gear 44, and a chain 48. The chain is attached at one end to part 50 in fixed relationship to the lower end of the extension 28. At the other end the chain is attached in any usual manner to spring 51 which in turn is secured to the floor member 52 of the machine as by fastener 54.

The advance of the marking material which is supplied on tape 56 and in roll form as shown is synchronized with the up and down movements of the foot pedal and that means also with the up and down movement of heated platen 10.

This synchronization is effected by means of the chain 48. As the chain moves up and down with the action of the foot pedal 24, gears 44 mesh with and operate gear wheel 58 which in turn is secured to one-way clutch 60 (Fig. 5)

which is connected with the roller 62 for advancing the marking strip 56 through the machine. This roller 62 is provided to advantage with a friction rubber surface and the strip is pressed against the surface by means of the overriding roller 64 pressing by spring 65 against the strip and mounted upon the arm 66 which is movable on pivot 68 attached to part 70 of the frame of the machine.

Braking mechanism is provided to retard the movement of the strip 56 on the way to the support and particularly to the upper part of the felt 22 lying upon the plane surface 20 of the support for the marking material. This braking mechanism consists of sheet material 72 extending on its lower surface generally parallel to the upper surface 20 of the support but at a lower level and terminating at an edge adjacent to but out of actual contact with the edge of the support 18 and the felt 22 upon the support. The machine includes means consisting of the depending bracket 74 and a central mounting 76 of the roll of tape, the mounting being to one side and somewhat below the support 18 for the marking material at the moment of pressing, so that the tape as drawn to the position of marking rubs against the lower surface and edge of the braking sheet 72 which also serves as a guide to hold the marking material upon the generally plane upper surface of the support 18. This braking mechanism is mounted in upwardly displaceable manner by the pivot mounting 78 on the frame of the machine.

The operation of the machine, as to points not clear from the description given above, is illustrated by the exploded view of Fig. 4 and the sectional view of Fig. 6.

By adjusting means 38, the distance of movement of platen 10, and consequently the stroke of the foot pedal 24, and, through it, the movement of chain 43 and rotation of roller 62 are set in unison, in accordance with the spacing of the label on strip 56, so that the platen completes its downward swing when the transferrable label is directly under the platen.

Goods 80 such as a napkin are brought down over the labeling strip 56. This strip is drawn in taut condition over the felt 22 by the combined action of the braking means described including the part 72 and the friction faced roller 62. The synchronizing of the movements caused by operation of the foot pedal and the proper spacing of the label of heat softenable marking material on the strip 56 results in the platen coming down when the label is in the position shown in Fig. 4.

Application of the heat by means of the heated platen 10 directly to the goods 80 placed over the label and through the goods to the label makes certain that the goods are at a somewhat higher temperature than the temperature to which the marking material is warmed by the heat passing through the goods. The insulating layer 22 behind the label serves to prevent excessive cooling of the label from the rear and to facilitate heating the ink to the temperature at which it will flow into the goods being marked.

In operation the platen and the support are brought together by movement of the pedal 24 and attached parts. The movement is actually one of the platen towards the support 18 so as to apply pressure to the goods and marking strip in face to face relation between the felt 22 and the platen. When the platen has been brought down on the goods so as to apply this pressure, the platen is maintained in position and the

warming continued until the temperature of the marking material has reached the point of softening to the desired extent.

When this softening of the marking material has occurred, the marking material penetrates into the absorbent goods 80 such as a napkin or a tablecloth. The marking material does not freeze or solidify or concentrate excessively on the surface of the goods being marked. The material cannot freeze at this position because the goods are actually warmer than the marking material itself. When, therefore, the material is softened to flowable condition it penetrates into the goods to a substantial depth since the goods have capillarity for the material and the material remains flowable after contacting and penetrating a reasonable distance into the goods.

The result is a clean unblurred marking which resists laundering and other operations and does not chip or rub off the surface and become imperfect for that reason.

Materials of construction of the machine, except as noted, are conventional for such parts in machines of this type.

It will be understood also that it is intended to cover all changes and modifications of the examples of the invention herein chosen for the purpose of illustration which do not constitute departures from the spirit and scope of the invention.

What I claim is:

1. A labeling machine for marking absorbent sheet goods with a marking material that is normally solid but softenable to flowable condition on warming, the machine comprising an unheated support with a generally plane surface for supporting the marking material, a heated platen with a generally plane face, means mounting the platen with the said face thereof in spaced relationship and approximately parallel to the said surface of the support, a roller for drawing the marking material in strip form over and in direct contact with the said surface of the support, means for introducing the sheet goods to be marked between the said strip of marking material and the plane face of the heated platen, and operating means for pressing the marking material and material to be marked between the heated platen and the said support, the structure described causing the transfer of heat to the marking material solely through the material to be marked and ensuring a temperature from back to front of the material to be marked at least as high as that on the face thereof in contact with the marking material.

2. A machine as described in claim 1 including a thermal insulating sheet providing the said generally plane surface of the support and providing an insulating backing on the side of the marking material away from the heated platen.

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